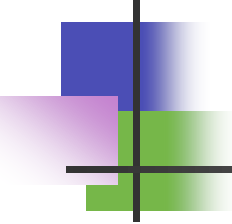




KRHKOST – Fizioterapija v geriatriji

Prepoznavanje in ocenjevanje
krhkosti in dejavnikov tveganja
zanjo – pregled literature

Ljubljana, 18.11.2021



Krhkost - definicija

- S starostjo povezane fiziološke in patološke spremembe, ki se kažejo z zmanjšano funkcionalno rezervo, omejeno sposobnostjo odzivanja na notranje in zunanje stresorje ter nestabilno homeostazo in ki vodijo v povečano ranljivost posameznika.
- Vodi do slabih zdravstvenih in funkcijskih izidov.

(Ferrucci, 2002; Studentski, 2004)

Kaj „krhkost“ pomeni starejšim?



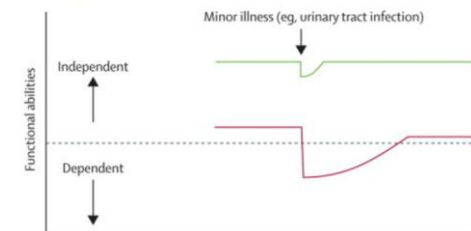
- Kvalitativna raziskava (LASA Longitudinal Aging Study Amsterdam):
 - ✓ Slabo zdravje.
 - ✓ Težave pri hoji.
 - ✓ Potrtost.
 - ✓ Anksioznost.
 - ✓ Majhno število socialnih stikov.
 - ✓ Nezmožnost delati stvari, ki jih imajo radi.
- Moški bolj opisujejo fizične dimenzije krhkosti.
- Ženske bolj opisujejo socialne in psihološke dimenzije krhkosti.

(Puts, et al., 2009)

Zakaj je potrebno prepoznati krhkost?

- Krhkost predstavlja tveganje za nastanek neželenih izidov po „navidez“ manjšem stresnem dogodku ali spremembi (British Geriatrics Society, 2014).
- Krhkost je povezana s/z:
 - ✓ Povečanim tveganjem za hospitalizacijo.
 - ✓ Povečanim tveganjem za institucionalizacijo.
 - ✓ Povečanim tveganjem za po-operativne zaplete.
 - ✓ Povečanim tveganjem za srčno-žilne dogodke ali bolezni.
 - ✓ Povečanim tveganjem za padce.
 - ✓ Izgubo premičnosti in samostojnosti.
 - ✓ Povečanim tveganjem za razvoj oviranosti.
 - ✓ 3-6X povečano smrtnostjo v 3.-7. letih.

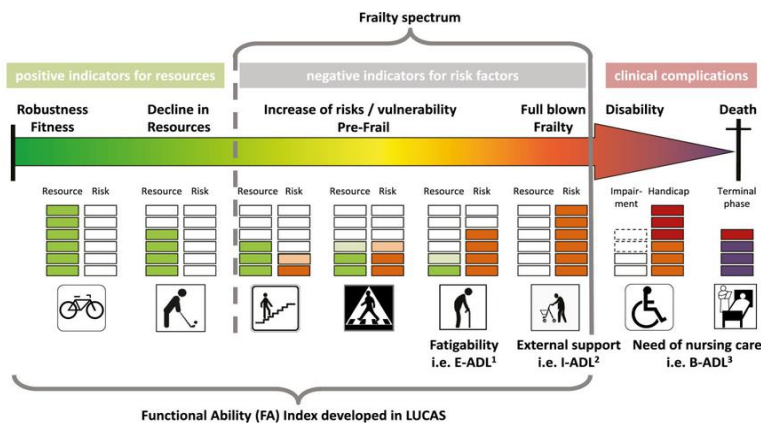
Vulnerability of frail elderly people to a sudden change in health status after a minor illness.



Clegg A, et al. Frailty in elderly people. Lancet. 2013; 381: 752 – 762.

Zakaj je potrebno prepoznati krhkost?

- Krhkost je dinamični proces, kjer se posameznik nahaja na kontinuumu med robustnostjo in oviranostjo.
- Krhkost ima reverzibilne komponente.

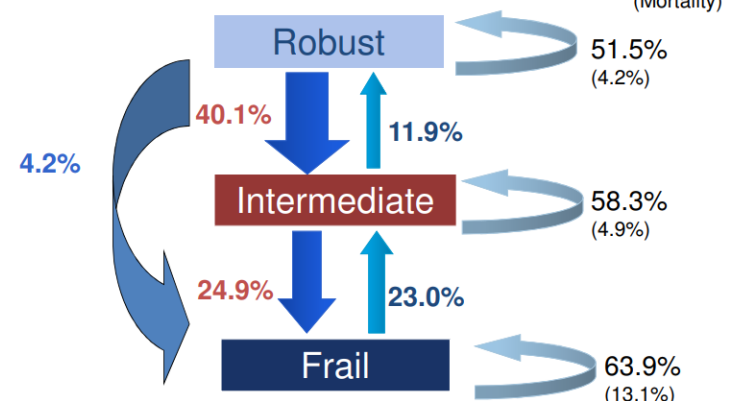


Based on the theoretical models of
Whitson H et al., J Gerontol Biol Sci Med Sci 2007; 62A(7): 728-730 and
Bergman H et al., Gérontology et société 2004; 109:15-29

1: E-ADL: External activities of daily living
2: I-ADL: Instrumental activities of daily living
3: B-ADL: Basic activities of daily living

Frailty is reversible

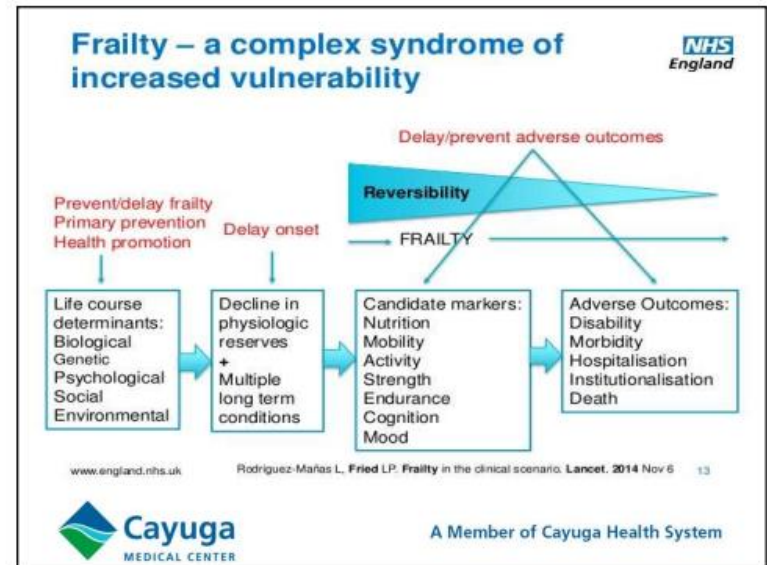
n=754, 75+ (community living), Follow-up 54 m : 57.6% (424) : ≥1 transition stable (Mortality)



(Gill, et al., 2006)

Zakaj je potrebno prepoznati krhkost?

- Krhkost ni neizogibni del staranja.
- Krhkost se da preprečiti.
- Krhkost vpliva na kakovost življenja.
- Prepoznavanje in ocenjevanje krhkosti omogoča načrtovanje in izvajanje ustrezne obravnave.



(Reilley, 2019)

Odkrivanje in ocenjevanje krhkosti

■ Presejanje na krhkost:

- ✓ Vsakega >65/70 let, ki vstopa v zdravstveni ali socialno varstveni sistem in ki ima vsaj enega od sindromov ali eno od značilnosti krhkosti.
- ✓ Strokovnjaki različnih zdravstvenih strok in socialni delavci z geriatričnimi znanji in poznavanjem ustreznih merilnih orodij.



■ Diagnosticiranje krhkosti:

- ✓ Zdravniki.
- ✓ Ob ugotovljeni verjetnosti krhkosti.
- ✓ V sklopu CGO.

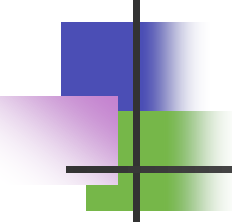
Merilna orodja za ocenjevanje krhkosti



- Ne obstaja konsenz o celoviti operativni definiciji krhkosti (Skela Savič & Gabrovec, 2018).
- V zadnjih 20. letih je bilo razvitih več kot 40 opredelitev krhkosti (Walston, Buta & Xue, 2018).
- Obstajajo različni načini merjenja krhkosti:
 - ✓ Samoocenjevalna orodja oz. samoporočanje.
 - ✓ Orodja, ki merijo izvedbo (performance based instruments).
 - ✓ Kombinacija/je.
- Buta, et al. (2016) so identificirali 67 orodij za ocenjevanje krhkosti.

- Prednosti orodij, ki merijo izvedbo v primerjavi s samoporočanjem:
 - ✓ Manjša možnost neodgovorjenih vprašanj.
 - ✓ Večja občutljivost za spremembe skozi čas in razlike v izvedbi dejavnosti.
 - ✓ Večja natančnost in veljavnost odgovorov.
 - ✓ Manjše tveganje za pristranskost, povezano z zaznavanjem in razpoloženjem.
 - ✓ Večja zanesljivost meritev zaradi standardizirane izvedbe in točkovanja.

- Pomanjkljivosti orodij, ki merijo izvedbo v primerjavi s samoporočanjem:
 - ✓ Manjša prijaznost za uporabnika/pacienta.
 - ✓ Zahtevajo več časa za izvedbo.
 - ✓ Zahtevajo posebno opremo, prostor in usposobljene preiskovalce.
 - ✓ Težave pri točkovanju in interpretaciji rezultatov.

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- **Izbira merilnega orodja je odvisna od** (Jakovljević, Knific & Petrič, 2017; Wilde Faller, et al., 2019):
 - ✓ Okolja, kjer se izvaja ocenjevanje (bolnišnica, OZ, institucionalno varstvo, domače okolje...).
 - ✓ Namena/ev in cilja/ev ocenjevanja (kaj dejansko ocenjujemo: oviranost ali krhkost? Tveganje neželenih izidov? Vzroke krhkosti?).
 - ✓ Kvalifikacije/usposobljenosti preiskovalca.
 - ✓ Porabe časa za izvedbo.
 - ✓ Potrebne opreme in prostora za izvedbo.
 - ✓ Tveganja za varnost uporabnika/pacienta.

 - **Vsak način ima svoje prednosti in pomanjkljivosti.**

“Frailty is distinct from, but overlapping with, both comorbidity and disability” (Fried et al., 2004)

■ **Krhkost ≠ oviranost in/ali komorbidnost.**

Oviranost = oteženost oz. odvisnost pri izvajanju dejavnosti za samostojno in kakovostno življenje

Z merilnimi orodji potrjujemo oviranost oz. ugotavljamo potrebo po pomoči (ADL, IADL, premičnost: FIM, Barthel...)

Skrbniki, izvajalci zdravstveno-socialnih storitev

Zdravstveno-socialne storitve

Krhkost = stanje povečane ranljivosti za neželene zdravstvene in psihosocialne izide zaradi disregulacije številnih fizioloških sistemov

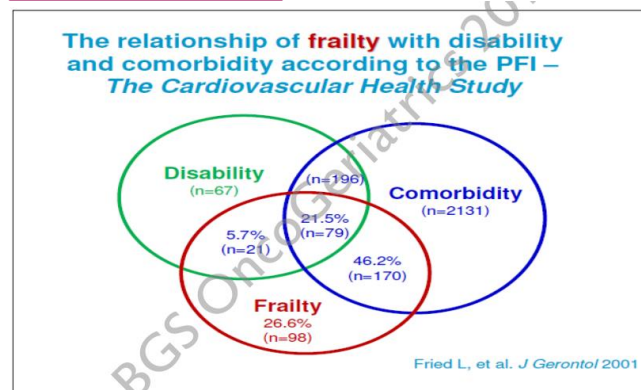
Z merilnimi orodji odkrivamo klinične manifestacije ali spremembe, ki lahko vodijo do neželenih izidov ter etiološke dejavnike za krhkost

Posameznik +
Skrbniki, izvajalci zdravstveno-socialnih storitev

Modeli obravnave

Komorbidnost = istočasna prisotnost dveh ali več bolezni /stanj; njun kumulativni učinek + interakcije

Medicinsko diagnosticiranje bolezni glede na uveljavljene, splošno priznane kriterije



(Fried, et al., 2001; Gobens, et al., 2010; Hendry, et al., 2019).

- Več kot polovica v literaturi najpogosteje citiranih merilnih orodij vključuje merila za oviranost ali komorbidnost.

Domains included in highly-cited frailty instruments.

Highly-cited frailty instrument	Physical function? (includes disability?)	
Physical Frailty Phenotype	Yes	(No)
Deficit Accumulation Index	Yes	(Yes)
Gill Frailty Measure	Yes	(No)
Frailty/Vigor Assessment	Yes	(Yes)
Clinical Frailty Scale	Yes	(Yes)
Brief Frailty Instrument	Yes	(Yes)
Vulnerable Elders Survey	Yes	(Yes)
FRAIL Scale	Yes	(No)
Winograd Screening Instrument	Yes	(Yes)
Total out of nine instruments	9	(6)

Risk factors

for functional decline in community-living elderly people.

Meta analysis

STUCK, Social Science and Medicine 1999;48:445-469

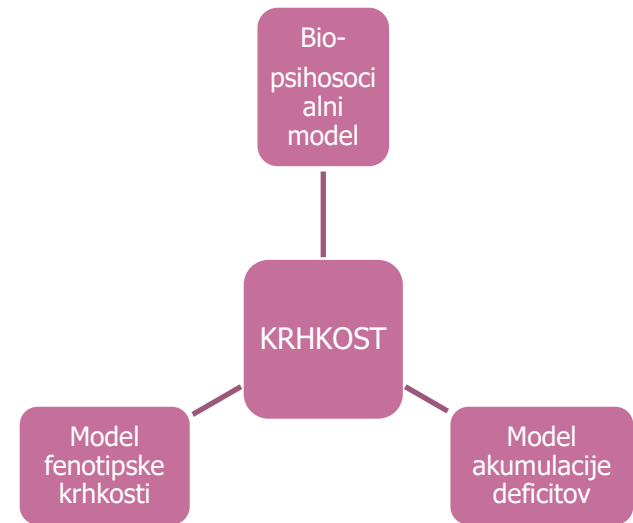
- **Cognitive impairment**
- **Comorbidity**
- **Lower extremity f. limitation**
- **Low level of physical activity**
- **Poor self perceived health**
- **Visual impairment**
- **Depression**
- **BMI**
- **Low fr. of social contact**
- **No alcohol use (vs moderate)**
- **Smoking**

Factors often assessed in frailty measurements

(Buta, et al., 2016).

Modeli krhkosti

- Večina razvitih merilnih orodij temelji na dveh pristopih (Wilke Faller, et al., 2019):
 - ✓ enodimezionalnem, ki je povezan s fizičnim zdravjem (Physical frailty „PH-railty“);
 - ✓ multidimezionalnem, ki vključuje fizični, psihološki, socialni in v zadnjem času tudi okoljski vidik (Functional frailty „F-railty“).
- Oba pristopa se dopolnjujeta (Cesari, et al., 2014).

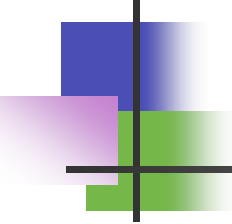


(Gobens, et al., 2010; Walston & Bandeen-Roche, 2015).



Model fenotipske krhkosti

- Biomedicinski, fizični model krhkosti.
- Fizična krhkost je pomemben medicinski sindrom (Buta, et al., 2016).
- Temelji na 5. fizičnih kriterijih/značilnostih (Fried, et al., 2001):
 - ✓ nenamerna izguba telesne teže;
 - ✓ povečana utrudljivost/izčrpanost;
 - ✓ mišična oslabeledlost;
 - ✓ počasna hoja;
 - ✓ nizka stopnja telesne dejavnosti/sedentarno vedenje.

- 
-
- Prevladujejo orodja, ki merijo motorično izvedbo in dejavnost (Walston, Buta & Xue, 2018).
 - Ne pokrivajo vseh dimenzij krhkosti \longrightarrow ne ponujajo dovolj podatkov za izbiro zdravljenja in načrtovanje oskrbe (Apostolo, et al., 2017).

The Fried frailty phenotype - The Cardiovascular Health Study (CHS) index

	Male	Female
Weight loss	Greater than 10 lbs (4.5 kg) or 5% of weight loss in the last year	
Slowness (4.57 m)	Height ≤ 173 cm: ≥ 7 s Height > 173 cm: ≥ 6 s	Height ≤ 159 cm: ≥ 7 s Height > 159 cm: ≥ 6 s
Dominant handgrip strength (kg)	BMI ≤ 24.0: ≤ 29 BMI 24.1–26.0: ≤ 30 BMI 26.1–28.0: ≤ 30 BMI > 28.0: ≤ 32	BMI ≤ 23.0: ≤ 17 BMI 23.1–26.0: ≤ 17.3 BMI 26.1–29.0: ≤ 18 BMI > 29.0: ≤ 21
Physical activity (MLTA)	< 383 kcal/week (about 2.5 h walk)	< 270 kcal/week (about 2 h walk)
Exhaustion	A score of 2 or 3 on either question on the CES-D How often in the last week did you feel this way? (a) I felt everything I did was an effort. (b) I could not get going. 0= less than 1 day, 1=1–2 days, 2=3–4 days, 3= more than 4 days	


Abbreviations: BMI, body mass index; CES-D, Center for Epidemiologic Studies Depression Scale; MLTA, Minnesota Leisure Time Activity Questionnaire.

Možne so ocene od 0-5:

- Krhkost: ≥ 3 kriteriji.
- Pred-krhkost: 1-2 kriterija.
- Robustnost: 0 kriterijev.

- Namenjen diagnosticiranju krhkosti v sklopu CGO.
- Močan napovedovalec poškodb, padcev, smrtnosti in dolžine hospitalizacije.

(White, et al., 2012; Qi Xue, et al., 2019; Natukor & Kwame Gavu, 2020)



Estimated time: < 10 min

Measures physiological deficits across five domains: weight loss, exhaustion, physical activity, muscle strength and walking speed.

Classification or scoring

Allows the identification of physical frailty.

- Robust: no problems
- Pre-frail: one or two deficits
- Frail: three or more of five physiological deficits.

Clinical settings

- Outpatient clinical setting
- Community / general practice

Assessment process

Clinical judgement

Based on what the person was like two weeks ago (so takes out the effect of acute reversible illness on functional state)

Pictorial representation of frailty based on clinical judgement, intended to be used after a comprehensive clinical assessment

- ✓ Special equipment
- ✓ Assessor training
- ✓ Valid and reliable
- ✓ Outcome prediction

Pros and cons

- ✓ Widely used
- ✓ Extensively validated to predict health outcomes
- ✓ Validated against adverse outcomes in large community cohorts
- ✓ Four of the five items are objective (performance can be measured)
- ✓ Correlation with physiologic markers of poor health outcomes including haemoglobin and pro-inflammatory markers.
- ✗ Some floor effects (occurs when test items are difficult and participants are unable to perform well on the least challenging items)
- ✗ Requires measurement of gait speed and hand grip strength
- ✗ Requires knowledge of normative data, particularly bottom 20% for grip strength and gait speed

Specificity

Validated tool.

Additional comments

Domains: physical

Determines pre-frailty and outcome mortality.

Reference

Fried, L.P., C.M. Tangen, J. Walston, A.B. Newman, C. Hirsch, J. Gottdiener, T. Seeman, R. Tracy, W.J. Kop, G. Burke, and M.A. McBurnie, Frailty in older adults: evidence for a phenotype. The journals of gerontology. Series A, Biological sciences and medical sciences, 2001. 56(3): p. M146-56.

Acknowledgement

Maxwell CA, Wang J. Understanding Frailty: A Nurse's Guide. Nurs Clin North Am. 2017;52(3):349-361. doi:10.1016/j.cnur.2017.04.003

Lestvica krhkosti

The Frail scale

FRAIL Scale		Yes: 1 point No: 0 point
F	atigue: "Do you feel tired?"	
R	esistance: "Are you able to climb one flight of stairs?"	
A	mbulation: "Are you able to walk one block?"	
I	llnesses: "Do you have more than five illnesses?"	
L	oss of Weight: "Did you lose greater than 5% of your weight in the last six months?"	
Total Score		/5
Frailty State (0/5: Robust; 1-2/5: Pre-frail; ≥ 3/5: Frail)		



Izvajanje dnevnih dejavnosti = sposobnost prehoditi vsaj 400m.

Je močan napovedni kazalnik za oviranost in smrtnost v obdobju 4-15 let po 50. letu starosti (Ruiz, et al., 2020).

(Agency for clinical innovation, 2020)

FRAIL scale

Estimated time: < 10 min

Five question tool directed at components of the Cardiovascular Health Study Frailty Index and one at the Rockwood Mitnitski Frailty Index.

Classification or scoring

5-item scale

- Fatigue
- Resistance
- Ambulation
- Illnesses
- Loss of weight

Clinical settings

- Hospital acute care
- Outpatient clinical setting
- Community / general practice

Assessment process

Self reported, yes or no answers. If person is in hospital, assess as how person was at two weeks prior.

- ✗ Special equipment
- ✗ Assessor training
- ✓ Valid and reliable
- ✓ Outcome prediction

Pros and cons

- ✓ Is quick and easy to use
- ✓ Simple questionnaire consisting of five self-reported yes or no items
- ✓ Patient can self-complete
- ✓ Does not require special equipment or measurements
- ✓ Identifies factors contributing to frailty
- ✓ Results indicate appropriate intervention, e.g. if patient or carer reports fatigue then screen for depression; if resistance or ambulation refer for physical activity or resistance training; weight loss refer to dietitian; >5 illnesses can be used as a proxy for polypharmacy.
- ✗ Focus on physical components of frailty
- ✗ Misses polypharmacy
- ✗ Poor questioning to determine unintentional weight loss.

Additional comments

Domains: physical

Determines pre-frailty and outcome mortality.

Preferred questioning for unintentional weight loss is 'have you lost weight recently without trying? If so, how much?'

Self-report with communication and/or cognitive issues relies on family and carer.

Specificity

Validated tool. The FRAIL Scale has been used and validated with diverse older populations and is predictive of disability and mortality.

Reference

Woo J, Leung J, Morley JE. Comparison of frailty indicators based on clinical phenotype and the multiple deficit approach in predicting mortality and physical limitation. *Journal of the American Geriatrics Society*. 2012 Aug;60(8):1478-1486.

FRAIL-NH

- Kratko, enostavno orodje za odkrivanje krhkosti v institucionalnem varstvu.
- Je napovednik za tveganje za padce pri uporabnikih s predkrhkostjo.
- Je napovednik smrtnosti pri uporabnikih s krhkostjo.

(Kaehr, et al., 2016).

Kaehr, Ellen W.; Pape, L. C.; Malmstrom, T. K.; Morley, John E. (2016). *FRAIL-NH predicts outcomes in long term care. The journal of nutrition, health & aging, 20(2), 192–198.* doi:10.1007/s12603-016-0682-5

FRAIL-NH

	0	1	2
Fatigue	No	Yes	PHQ-9 ≥10
Resistance	Independent Transfer	Set Up	Physical Help
Ambulation	Independent	Walker	Not Able/WC
Incontinence	None	Bladder	Bowel
Loss of Weight	None	yes	xxxx
Nutritional Approach	Regular Diet	Mechanically Altered	Feeding Tube
Help with Dressing	Independent	Set Up	Physical Help
Total			0-13

Nonfrail (0-5), Prefrail (6-7), Frail (≥8)

Kaehr E, Visvanathan R, Malmstrom TK, Morley JE. Frailty in Nursing Homes: The FRAIL-NH Scale. *J Am Med Dir Assoc* 2015;16(2):87.

Appendix 1 FRAIL NH Scale

F= Fatigue, based on MDS response to PHQ-9, No (never or 1 day=0), Yes (several days or everyday=1), Depressed (PHQ-9 of ≥10=2)

R=Resistance, Can patient transfer, Independent ± Supervision=0, Set Up Only=1, or Physical Assistance=2

A= Ambulation, Independent=0, Walker/Cane=1, Not Able/Wheel-chair=2

I= Incontinence, None=0, Urinary Incontinence=1, Bowel Incontinence=2

L= Loss of Weight, defined by MDS as ≥ 5% in 30 days or ≥10% in 180 days No=0, Yes=1

N= Nutritional Approach, Regular Diet=0, Altered Diet=1, Feeding Tube=2

H=Help with dressing, Independent ± Supervision=0, Set Up only=1, Physical Assistance=2

Vprašalnik Prizma 7

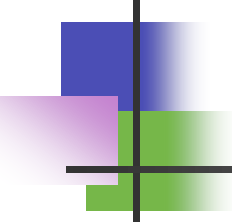
- 7-stopenjski vprašalnik za prvo oceno krhkosti v skupnosti in na primarni ravni.
- Uporablja se za identifikacijo starejših, ki potrebujejo celovito geriatrično oceno.
- ≥ 3 točke pomeni povečano tveganje za krhkost.
- Vprašalnik je namenjen preiskovalcem, možno pa je tudi samoizpolnjevanje preiskovanca.

VPRAŠANJA ZA PACIENTE		
1. Ali ste starejši kot 85 let?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
2. Ali ste moškega spola?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
3. Ali imate na splošno kakršnekoli zdravstvene težave, ki vas omejujejo pri vaših dejavnostih?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
4. Ali redno potrebujete pomoč druge osebe?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
5. Ali imate na splošno kakršnekoli zdravstvene težave, zaradi katerih morate ostati doma?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
6. Če potrebujete pomoč, ali lahko računate na nekoga bližnjega?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
7. Ali za premikanje v prostoru redno uporabljate sprehajalno palico, hoduljo ali voziček?	Da <input type="checkbox"/>	Ne <input type="checkbox"/>
Število označenih:		_____

Navodila:

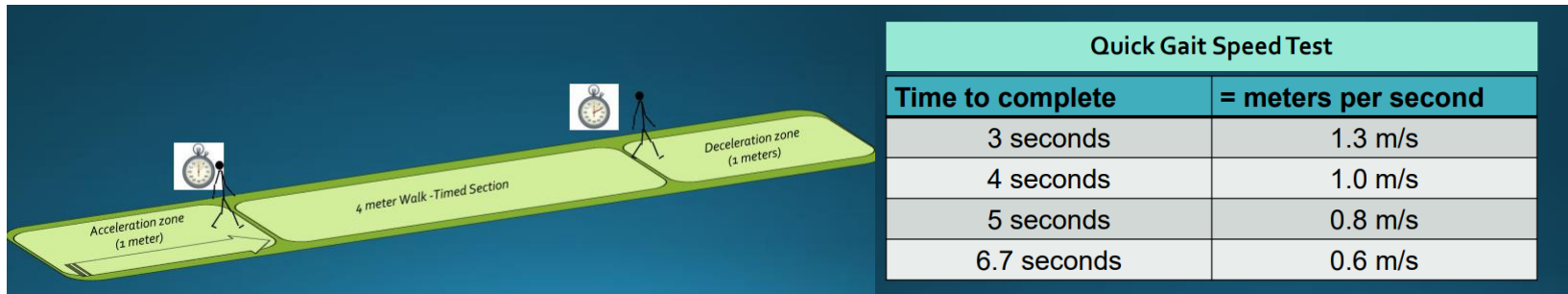
- Pri vprašanjih 3-7 odgovora ne razlagajte, temveč preprosto zapišite odgovor osebe, ne da osebi razlagate kaj pomeni »da« in kaj pomeni »ne«.
- Če anketirani okleva med odgovoroma »da« ali »ne«, ga prosite, da se odloči za en odgovor.
- Če kljub več poskusom anketirani še vedno vztraja pri odgovorih »malo« ali »občasno«, vpišite odgovor »da«.

(Palčič, 2020)

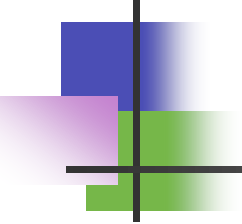
- 
-
- Občutljivost = 0,83; specifičnost = 0,83.
 - Je lahko izvedljiv, preprost in sprejemljiv za preiskovalce (med. sestre) in preiskovance.
 - Britansko geriatrično združenje priporoča uporabo Prizma 7 + merjenje hitrosti hoje + TUGT.

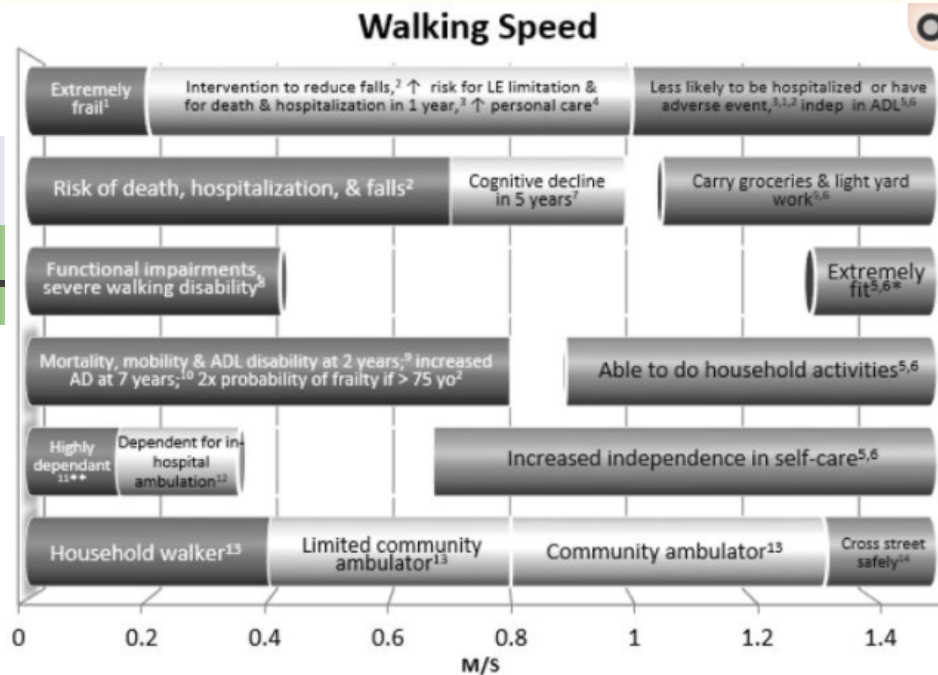
Hitrost hoje

- Velja za 6. vitalni znak.
- Način izvedbe testa ni poenoten (začetek; razdalja; način hoje; način merjenja časa; spodbujanje; obutev; uporaba pripomočka).
- Najpogosteje se uporablja test hoje na 4 m.



- Hitrost hoje $< 0,8\text{m/s}$ ALI $>5\text{s}$ za prehojeno razdaljo 4m = povečano tveganje za neželene zdravstvene izide.
- Hitrost hoje $< 0,6\text{m/s}$ = slabo zdravje in oviranost.
- Hitrost hoje $< 0,2\text{m/s}$ = ekstremna krhkost.

- 
- Izboljšanje hitrosti hoje za 0,1m/s napoveduje izboljšanje počutja. Zmanjšanje hitrosti za 0,1m/s je povezano s (Purser, 2005; Hardy & Perrera, 2007) (standardna minimalna napaka merjenja 0,1m/s):
 - ✓ Slabšim zdravstvenim stanjem;
 - ✓ Povečanjem oviranosti;
 - ✓ Daljšo hospitalizacijo.
 - Je veljavno, zanesljivo in občutljivo mersko orodje.
 - Hitrost hoje < 0,8m/s = občutljivost (0,99), specifičnost (0,64).
 - Je odličen napovednik oviranosti pri DA, potrebe po dolgotrajni oskrbi, padcev in smrtnosti.



[Open in a separate window](#)

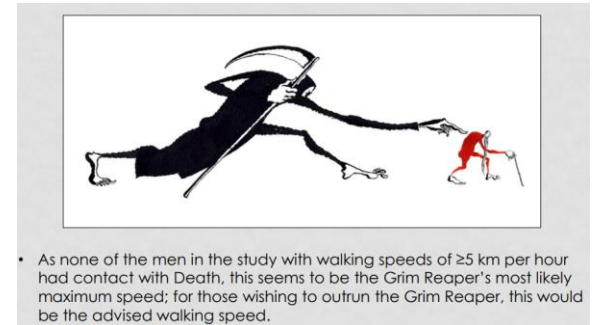
Figure 1

Depiction of walking speeds and the associated outcomes. m/s, meters per second; ↑, increased; LE, lower extremity; indep, independent; ADL, activities of daily living; AD, Alzheimer's disease; 2x, two times; yo, years old; d/c, discharge

* Able to climb several flights of stairs

**More likely to require long term hospital care than d/c home or nursing home 1. (Studenski et al., 2003), 2. (Montero-Odasso et al., 2005), 3. (Cesari et al., 2005), 4. (Shimada et al., 2013), 5. (Ainsworth et al., 2011), 6. (Studenski, 2009), 7. (Inzitari et al., 2007), 8. (Atkinson et al., 2005), 9. (Ostir, Kuo, Berges, Markides, & Ottenbacher, 2007), 10. (Abellan van Kan et al., 2012), 11. (Friedman, Richmond, & Baskett, 1988), 12. (Graham, Fisher, Berges, Kuo, & Ostir, 2010), 13. (Perry, Garrett, Gronley, & Mulroy, 1995), 14. (Salbach et al., 2013)

(Middleton, Fritz & Lusardi, 2015)



• As none of the men in the study with walking speeds of ≥ 5 km per hour had contact with Death, this seems to be the Grim Reaper's most likely maximum speed; for those wishing to outrun the Grim Reaper, this would be the advised walking speed.

(Hanaway, et al., 2011)

"If you can't stand up, you can't walk"

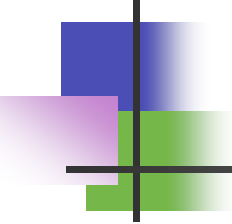
Test petih vstajanj s stola

- Najpogosteje uporabljen in najboljše opisan test vstajanja pri starejših.
- Ocenjuje potreben čas za petkratno vstajanje iz sedečega v stoječ položaj in obratno čim hitreje.
- Višina stola 42cm-46cm, brez naslonov za roke.
- Namen je ocena moči spodnjih udov, ravnotežja, prehodov med položaji in tveganja za padce.
 - ✓ $\geq 12s$ na testu = potestna verjetnost za padec 41%; $< 12s$ na testu = potestna verjetnost 20% (Lusardi, et al., 2017).
 - ✓ $\geq 10s$ = signifikantno večje tveganje za razvoj oviranosti pri starejših v skupnosti (Makizako, 2017).
 - ✓ $\geq 15s$ = napovedni kazalnik ponovnega padca (Buatois, et al., 2008).
- Na izvedbo vplivajo tudi drugi dejavniki (motivacija, kognicija, bolečina itd.) (Levec & Jakovljević, 2020).



○ 60-69 y/o	11.4 sec
○ 70-79 y/o	12.6 sec
○ 80-89 y/o	14.8 sec

(Bohannon, 2006)

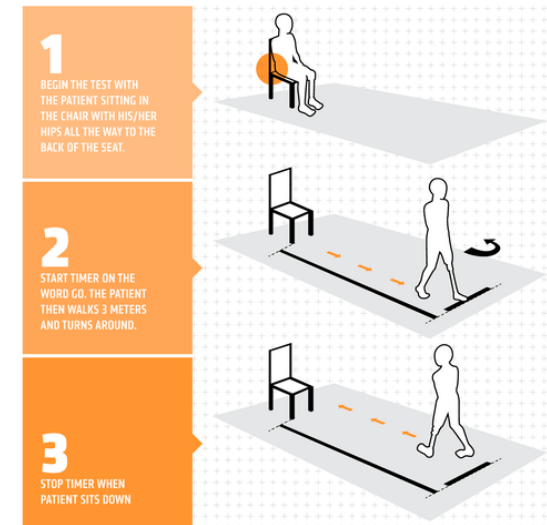
- 
-
- Odlična test-retest zanesljivost (0,988-0,995).
 - Odlična skladnost med ocenjevalci (interklasni koeficient korelacije 0,914-0,933) (Teo, Mong & Ng, 2013).
 - Zmerna odzivnost za spremembe skozi čas (0,58) (Meretta, et al., 2006).
 - Za premagovanje učinka tal: 30/60 sekundni test vstajanja s stola; modificiran test petih vstajanj s stola (Levec & Jakovljević, 2020).

Modificiran test petih vstajanj s stola

- Guralnik, et al. (1994) so ugotovili, da kar 22 % starejših odraslih ni bilo sposobnih petkrat zapored vstati s stola brez uporabe rok.
- Pri preiskovancu, ki ni sposoben izvesti nobenega samostojnega prehoda v stoječi položaj brez uporabe rok, je smiselno izvesti modificiran 5TSTS.
- Pri tem uporabi zgornje ude – se nasloni na stegna ali stol ali uporabimo stol z naslonjali za roke, ki jih lahko uporabi. Vrsto modifikacije je treba zapisati k izidu. Spremeni se tudi interpretacija izida, saj sta v tem primeru vpliva mišične jakosti spodnjih udov in ravnotežja na vstajanje manjša, kljub vsemu pa se oceni funkcijska sposobnost prehoda med položaji.

Časovno merjeni Vstani in pojdi test

- TUGT je preprost, praktičen, poceni, hitro izvedljiv in zanesljiv pokazatelj funkcijske premičnosti in dinamičnega ravnotežja.
- Ne zahteva dodatnega izobraževanja.
- Za njegovo izvedbo potrebujemo manj kot 10 minut, izvajamo ga lahko tako v kliničnem okolju kot na terenu.
- Časovne vrednosti:
 - ✓ $\leq 10s$ = odsotnost krhkosti.
 - ✓ $11-14s$ = predkrhkost.
 - ✓ $\geq 15s$ = krhkost.
- TUGT $> 10S$ = občutljivost 0,93,
specifičnost=0,62.



Preizkus moči prijema

- Enostaven, hiter in poceni način odkrivanja krhkosti.
- Moč prijema je napovednik splošnega zdravja in delovanja.
- Priporoča se kot osnovna mera za ugotavljanje mišičnoskeletne funkcije, mišične oslabelosti in oviranosti.
- Test-retest zanesljivost dobra do odlična (interklasni koeficient korelacije $\geq 0,80$ pri uporabi povprečne vrednosti, najboljše vrednosti in 1. meritve).

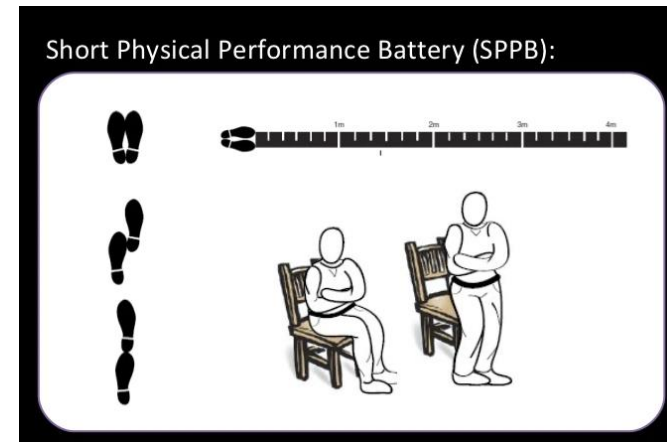


Strength categories for grip strength associated with mobility limitations⁷⁹

Strength Category	Men	Women
Normal	>32 (greater than or equal to)	>20 (greater than or equal to)
Intermediate	26-32 kg	16-20 kg
Weak	<26 kg	<16 kg

Kratka baterija fizične zmogljivosti

- Je široko uporabljeno orodje za ocenjevanje funkcije spodnjih udov. Priporoča ga tudi skupni evropski projekt Advantage.
- Uporablja se za odkrivanje krhkosti v skupnosti/na terenu.
- Za izvedbo potrebujemo okoli 10 minut.
- Je napovednik neželenih izidov: zmanjšana premičnost, padci, izguba samostojnosti pri izvajanju DA, hospitalizacija, dolžina hospitalizacije, institucionalizacija in smrtnost.
- Sestavljajo jo trije testi:
 - ✓ Časovno merjena hoja na kratki razdalji (2,4m; 3m ali 4m).
 - ✓ Test petih vstajanj s stola.
 - ✓ Ravnotežni testi (stoja z nogami skupaj; semitandemska stoja in tandemska stoja).



- 0-3 točk = oviranost.
- 4-6 = krhkost
- 7-9 točk = predkrhkost.
- 10-12 točk = brez krhkosti.

Mejna vrednost za moške: ≤ 8 točk.

Mejna vrednost za ženske: ≤ 7 točk.

Kratka baterija fizične zmogljivosti je veljavno in zanesljivo (*test-retest zanesljivost 0,81-0,91*) orodje za ocenjevanje telesne funkcije pri starejših na terenu.

SCORING:

A. Side-by-side-stand

- Held for 10 sec 1 point
 Not held for 10 sec 0 points
 Not attempted 0 points

If 0 points, end Balance Tests

Number of seconds held if less than 10 sec: ____ _sec

B. Semi-Tandem Stand

- Held for 10 sec 1 point
 Not held for 10 sec 0 points
 Not attempted 0 points (*circle reason above*)

If 0 points, end Balance Tests

Number of seconds held if less than 10 sec: ____ _sec

C. Tandem Stand

- Held for 10 sec 2 points
 Held for 3 to 9.99 sec 1 point
 Held for < than 3 sec 0 points
 Not attempted 0 points (*circle reason above*)

Number of seconds held if less than 10 sec: ____ _sec

D. Total Balance Tests score _____ (sum points)

Scoring the Repeated Chair Test

- Participant unable to complete 5 chair stands or completes stands in >60 sec: 0 points
 If chair stand time is 16.70 sec or more: 1 points
 If chair stand time is 13.70 to 16.69 sec: 2 points
 If chair stand time is 11.20 to 13.69 sec: 3 points
 If chair stand time is 11.19 sec or less: 4 points

For 4-Meter Walk:

- If time is more than 8.70 sec: 1 point
 If time is 6.21 to 8.70 sec: 2 points
 If time is 4.82 to 6.20 sec: 3 points
 If time is less than 4.82 sec: 4 points

For 3-Meter Walk:

- If time is more than 6.52 sec: 1 point
 If time is 4.66 to 6.52 sec: 2 points
 If time is 3.62 to 4.65 sec: 3 points
 If time is less than 3.62 sec: 4 points

If participant did not attempt test or failed, circle why:

- | | |
|--|---|
| Tried but unable | 1 |
| Participant could not hold position unassisted | 2 |
| Not attempted, you felt unsafe | 3 |
| Not attempted, participant felt unsafe | 4 |
| Participant unable to understand instructions | 5 |
| Other (specify) _____ | 6 |
| Participant refused | 7 |

<https://geriatrictoolkit.missouri.edu/SPPB-Score-Tool.pdf>

Ostali objektivni, na izvedbi temelječi testi

- Testi transferjev:
 - ✓ Časovno merjeni test transferja na tla.
 - ✓ Test vstajanja s tal iz ležečega položaja.
- Testi ravnotežja:
 - ✓ Funkcionalni doseg.
 - ✓ Test stoje na eni nogi.
- Testi gibljivosti sklepov in fleksibilnosti:
 - ✓ Dotik dlani za hrbtom.
 - ✓ Doseg sede na stolu.
- Kardiorespiratorni testi:
 - ✓ 6-minutni test hoje.
 - ✓ 2-minutni test stopanja na mestu.
- Baterije testov za ugotavljanje telesne pripravljenosti starejših.

Levec, T. & Jakovljević, M. (2020). Performance-Based Screening Tools for Physical Frailty in Community Settings, Frailty in the Elderly - Understanding and Managing Complexity, Sara Palermo, IntechOpen, DOI: 10.5772/intechopen.94149. Dosegljivo na: <https://www.intechopen.com/chapters/73606>

Testiranje telesne pripravljenosti starejših oseb : senior fitness test - slovenska različica : priročnik za preiskovalce / Miroљjub Jakovljević, Tjaša Knific, Maja Petrič. - Ljubljana : Nacionalni inštitut za javno zdravje, 2017. Dosegljivo na: <https://www.dlib.si/details/URN:NBN:SI:doc-WXO4NCSL>

Model akumulacije deficitov



- Izhaja iz koncepta, da je krhkost posledica interakcij med fizičnimi, duševnimi in kognitivnimi dejavniki.
- Predpostavlja, da akumulacija specifičnih bolezni, fizičnih znakov in simptomov ter funkcijskih primanjkljajev vodi do razvoja ranljivosti in krhkosti.

'The more things that are wrong with you, the more likely you are to be frail'

- Temelji na 20-30-40-70- 92(!) spremenljivkah/primanjkljajih CGO (Rockwood, et al., 2005; Rockwood & Mitnitski, 2011).

- Changes in everyday activities
 - Head and neck problems
 - Poor muscle tone in neck
 - Bradykinesia, facial
 - Problems getting dressed
 - Problems with bathing
 - Problems carrying out personal grooming
 - Urinary incontinence
 - Toileting problems
 - Bulk difficulties
 - Rectal problems
 - Gastrointestinal problems
 - Problems cooking
 - Sucking problems
 - Problems going out alone
 - Impaired mobility
 - Musculoskeletal problems
 - Bradykinesia of the limbs
 - Poor muscle tone in limbs
 - Poor limb coordination
 - Poor coordination, trunk
 - Poor standing posture
 - Irregular gait pattern
 - Falls
- Mood problems
 - Feeling sad, blue, depressed
 - History of depressed mood
 - Tiredness all the time
 - Depression (clinical impression)
 - Sleep changes
 - Restlessness
 - Memory changes
 - Short-term memory impairment
 - Long-term memory impairment
 - Changes in general mental functioning
 - Onset of cognitive symptoms
 - Clouding or delirium
 - Paranoid features
 - History relevant to cognitive impairment or loss
 - Family history relevant to cognitive impairment or loss
 - Impaired vibration
 - Tremor at rest
 - Postural tremor
 - Intention tremor
 - History of Parkinson's disease
 - Family history of degenerative disease
- COGNITIVE Variables**
- Seizures, partial complex
 - Seizures, generalized
 - Syncope or blackouts
 - Headache
 - Cerebrovascular problems
 - History of stroke
 - History of diabetes mellitus
 - Arterial hypertension
 - Peripheral pulses
 - Cardiac problems
 - Myocardial infarction
 - Arrhythmia
 - Congestive heart failure
 - Lung problems
 - Respiratory problems
 - History of thyroid disease
 - Thyroid problems
 - Skin problems
 - Malignant disease
 - Breast problems
 - Abdominal problems
 - Presence of snout reflex
 - Presence of the palmomental reflex
 - Other medical history

Table 1
46 deficits included in frailty index.

Comorbidities <ul style="list-style-type: none"> • Stroke • Thyroid condition • Cancer • Heart attack • Heart disease • Ever had high blood pressure • Angina/angina pectoris • Osteoporosis • Diabetes • Arthritis • Ever had broken hip • Cataract operation • Weak/failing kidneys 	Sign/symptoms <ul style="list-style-type: none"> • Heart rate at rest • Systolic blood pressure • Cough regularly • Leaked/lost control or urine • General vision • Difficulty seeing steps/curbs in dim light • General hearing • Confusion or inability to remember things
Function <ul style="list-style-type: none"> • Difficulty using fork and knife • Difficulty dressing yourself • Difficulty getting in/out of bed • Difficulty standing up from armless chair • Difficulty managing money • Difficulty preparing meals • Difficulty standing for long periods of time • Difficult stooping, crouching, kneeling • Difficulty grasping/holding small objects • Difficulty lifting or carrying • Difficulty pushing or pulling large objects • Difficult attending social event 	Lab values <ul style="list-style-type: none"> • Homocysteine ($\mu\text{mol/L}$) • Folate, serum (nmol/L) • Glycohemoglobin (%) • Red blood cell count (million cells/μL) • Hemoglobin (g/dL) • Red cell distribution width (%) • Lymphocyte percent (%) • Segmented neutrophils percent (%)
	Other <ul style="list-style-type: none"> • Medications • Self-reported health • Health compared to 1 year ago • Frequency of healthcare use • Overnight hospital stays

(Mitnitski, et al., 2011)

Rockwood Mitnitski Frailty Index

Estimated time: about 30 min

Frailty index of cumulative deficits where a person is measured in terms of their deficits compared to a pre-determined list. Frailty Index = (number of health deficits present) ÷ (number of health deficits measured)

Classification or scoring

Uses a deficit count and proportion of potential deficits that a person has accumulated.

Range

- Robust 0-<0.1
- Pre-frail 0.1-<0.2
- Approaching frailty 0.2-<0.25
- Frail >0.25

The Frailty Index is calculated by counting the number of deficits out of a total list of potential deficits for that person. For example, if an individual has 10 deficits from a total of 40, the index is 0.25.

Clinical settings

- Hospital acute care
- Outpatient clinical setting
- Community / general practice

Assessment process

Comprehensive geriatric assessment

- ✗ Special equipment
- ✓ Assessor training
- ✓ Valid and reliable
- ✓ Outcome prediction

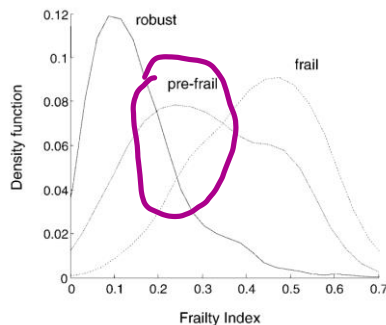


Figure 3. Density distributions of deficits, smoothed by a Gaussian kernel function, for people classified by the phenotypic definition as robust, pre-frail, or frail. The overlap in deficit accumulation between persons who are robust and those who are frail occurs close to the median of the robust, ~0.25.

Pros and cons

- ✓ Robust indicator of frailty
- ✓ Precise grading
- ✓ Validated against adverse outcomes in large community cohorts
- ✓ Precise measurement
- ✓ Reproducible across populations and disease states.
- ✗ Length of time to complete may mean less compliance uptake outside of a research setting
- ✗ Cumbersome in clinical setting
- ✗ Once completed, does not give an indication of referrals to make to help manage their frailty.

Specificity

Validated tool. A good predictor of poor outcomes in older people in hospital.

Additional comments

Domains: physical, psychological, social

It includes deficits such as osteoporosis, chronic illness, depression, anaemia and cognitive impairment.

Determines outcome mortality.

FI močno korelira s tveganjem za smrt (0.95). Starejši s FI > 0,50 (na podlagi CGO) 100% jih umre v naslednjih 20. mesecih (Koller & Rockwood, 2013).

Reference

Rockwood, K., X. Song, C. MacKnight, H. Bergman, D.B. Hogan, I. McDowell, and A. Mitnitski, A global clinical measure of fitness and frailty in elderly people. CMAJ, 2005. 173: p. 489-195.

- Napovednik za: padce, funkcijski upad, hospitalizacijo, institucionalizacijo, nastanek novih bolezni in multiplih neželenih izidov ter smrtnost (Drubbel, et al., 2014).

(Rockwood, Andrew & Mitnitski, 2007; Agency for clinical innovation, 2020)

Klinična lestvica krhkosti – Clinical frailty scale

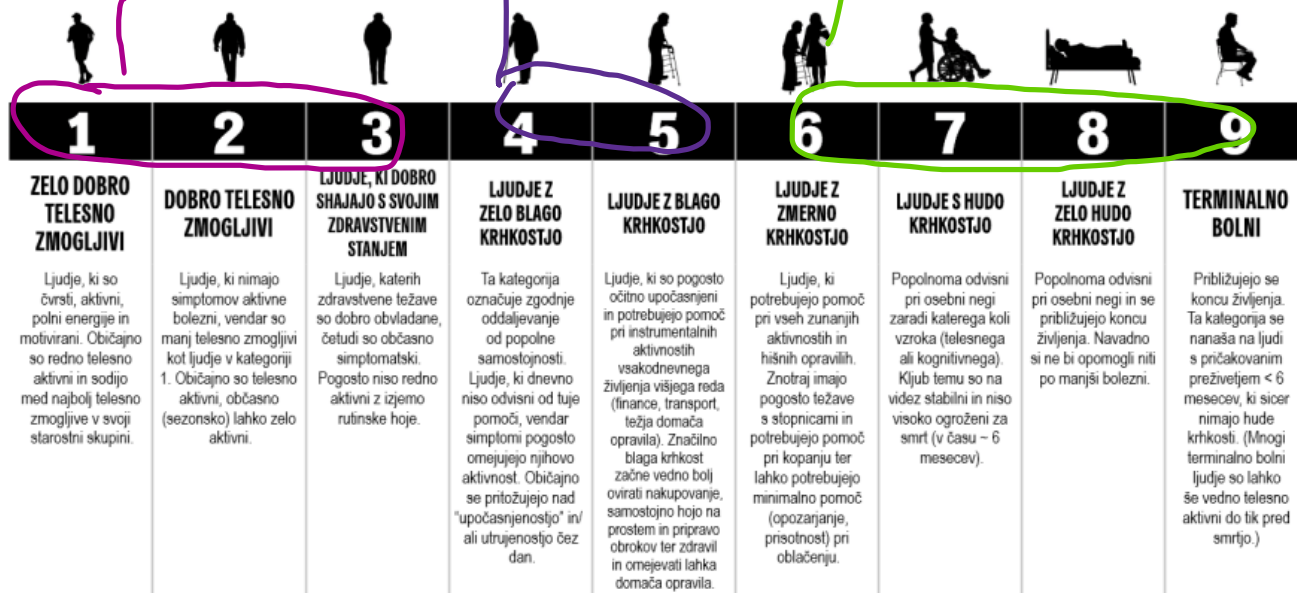
- 9-stopenjska slikovna lestvica + klasifikacijsko drevo.
- Za oceno krhkosti uporablja fizične in funkcijske kazalnike.
- Objektivno merilno orodje, ki temelji na klinični presoji (integracija poročanega, opazovanja/ocenjevanja in kliničnih izkušenj).
- Osnova je dobra anamneza.
- Fokus je na spremembah zdravstvenega stanja in funkcije.
- Multidisciplinarno ocenjevanje (Rockwood, et al., 2005; Walston, Buta & Xue, 2019).
- Korelira s FI in je napovednik za smrtnost in institucionalizacijo (Koller & Rockwood, 2013; Ruiz, et al, 2020).
- Demenca ni omejitveni kriterij za uporabo (blaga demenca: ocena 5; zmerna demenca: 6; huda demenca: 7) (Geriatric Medicine Research, n.d.).
- Na CGM UKC Lj so letvico prevedli in od avtorja pridobili dovoljenje za uporabo.

Brez krhkosti

Ranljivost

Oviranost

CLINICAL FRAILITY SCALE - SLOVENE



OCENJEVANJE KRHKOSTI PRI LJUDEH Z DEMENCO

Stopnja krhkosti praviloma sovpadá s stopnjo demence. Ljudje z blago demenco pogosto pozabljajo podrobnosti nedavnega dogodka ob tem, da se še vedno spominjajo dogodka samega, ponavljajo isto vprašanje/zgodbó in se izgubajo socialnim stikom.

Pri ljudeh z **zmerno demenco** je nedavni spomin zelo prizadet, čeprav se lahko dobro spominjajo

svojih preteklih življenjskih dogodkov. Zmorejo osebno nego ob vzpodbudi.

Ljudje s **hudo demenco** ne zmorejo osebne nege brez pomoči.

Ljudje z **zelo hudo demenco** so pogosto vezani na posteljo. Številni so tako rekoč nemi.

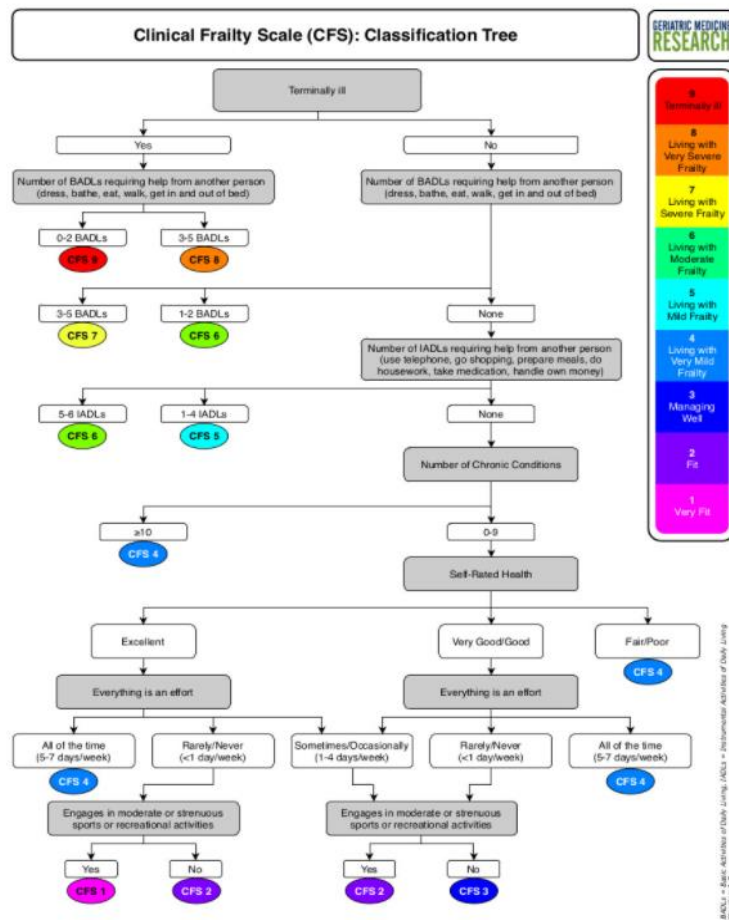
Clinical Frailty Scale © 2005-2020 Rookwood, Version 2.0 (SL). All rights reserved. For permission: www.geriatricmedicineresearch.ca

Translated with permission to Slovene by Gregor Verčak, MD, Gregor Veninšak, MD, Miha Šuštar, MA in interpreting, Ljubljana, Slovenia, 2021

Rookwood K et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.



CFS CLASSIFICATION TREE



CFS Classification Tree - Geriatric Medicine Research - Dalhousie University

Clinical Frailty Scale (CFS)

Estimated time: < 10 min

Initially developed as a seven-point scale. Currently a nine-point global scale ranging from very fit to severely frail to terminally ill.

Classification or scoring

Levels of frailty

1. Very fit
2. Well
3. Well, with treated comorbid disease
4. Apparently vulnerable
5. Mildly frail
6. Moderately frail
7. Severely frail
8. Very severely frail
9. Terminally ill.

Clinical settings

- Hospital acute care
- Outpatient clinical setting

Lahko se uporablja tudi v institucionalnem varstvu

Assessment process

Clinical judgement

Based on what the person was like two weeks ago (so takes out the effect of acute reversible illness on functional state)

Pictorial representation of frailty based on clinical judgement, intended to be used after a comprehensive clinical assessment

✗ Special equipment

✓ Assessor training

✓ Valid and reliable

✓ Outcome prediction

Pros and cons

- ✓ Easy to use and implement
- ✓ Demonstrated very good inter-rater reliability
- ✓ Clinically feasible
- ✓ When used by trained assessors, it predicts short- and long-term mortality in acutely hospitalised older adults
- ✓ Can be completed based on routine clinical admission and there is no need for extra equipment
- ✗ Subjective assessment
- ✗ Has only been validated for use by specialists
- ✗ Frequently only the visual diagrams considered, without noting the descriptors beneath each picture
- ✗ Less valid if performed by non-trained staff without clinical assessment
- ✗ Does not identify contributing factors to frailty
- ✗ Once completed, gives a number, but not an indication of which referrals to make to help manage their frailty.

Specificity

Validated in >65-year-olds. Used as a triage tool to help decide on the ideal treatment and care to address the older person's goals and avoid further harm through iatrogenic (outcomes inadvertently induced by medical treatment or diagnostic procedures) means.

Additional comments

Domains: physical, psychological

This version of the Clinical Frailty Scale was extended in 2008 to include two more levels, a total of nine, and includes a comment about scoring frailty in people with dementia. This extended version is available for use in research and educational purposes only.

Determines pre-frailty and outcome mortality

Clinical judgments about frailty can yield useful predictive information. The tool can aid communication with older adult patients, and their substitute decision makers. It has potential to standardize assessment and understanding when communicating between colleagues in primary care, emergency room and long-term care settings.

Reference

Mitniski, A., X. Song, and K. Rockwood, The estimation of relative fitness and frailty in community-dwelling older adults using self-report data. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 2004. 59: p. M627-M632

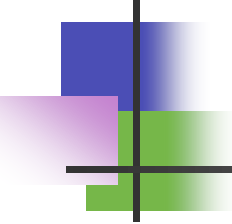
CFS Guidance & Training - Geriatric Medicine Research - Dalhousie University

Guidance for using the **Clinical Frailty Scale** has been published in **Rockwood K, Theou O. Using the Clinical Frailty Scale in allocating scarce health care resources. *Can Geriatr J.* 2020;23:254-259.**



Biopsihosocialni model

- Predstavlja integralni, celovit multidimenzionalni pristop k krhkosti, ki se odmika od medicinskega modela.
- Temelji na definiciji, da je krhkost dinamični proces, v katerem zaradi vrste spremenljivk doživlja izgube na različnih področjih delovanja, ki povečujejo tveganje za neželene izide.
- Poudarja pomen socialnega in ekonomskega konteksta pri ugotavljanju ranljivosti posameznika za nastanek neželenih izidov.
- Ocenjuje se kumulativni upad.

- 
-
- Komponente: prehranjevanje, premičnost, telesna dejavnost, moč, vzdržljivost, kontinenca, polifarmacija, kognicija, razpoloženje, spoprijemanje/obvladovanje, socialni odnosi in socialna podpora.
 - Podpira multidisciplinarni pristop k ocenjevanju.
 - Ponuja izhodišča za nadaljnje raziskave o krhkosti.

(Gobbens, et al., 2010)

Edmontonska lestvica krhkosti

– The Edmonton frail scale

- Večdimenzionalno orodje za odkrivanje in ocenjevanje resnosti krhkosti, ki temelji na izvedbi.
- Vključuje 11 vprašanj in pokriva 9 področij: kognicija, splošno zdravstveno stanje, funkcijska samostojnost, uporaba zdravil /polifarmacija, kontinenca, socialna podpora, razpoloženje, prehranjevanje in funkcijska izvedba.
- Samoporočanje + opazovanje funkcije.
- Originalna verzija EFS, 2006; **Reported Edmonton Frail Scale (REFS)**= adaptirana verzija za akutne paciente v Avstraliji (2009).
- Potrebna licenca.

The EFS is available in the following languages:

*Selected translations of the EFS are also available on request.

- | | |
|---------------------|---------------------------|
| • Brunei Malay | • Portuguese |
| • Dutch | • Romanian |
| • French (Canadian) | • Slovenian |
| • Hebrew | • Spanish (Castilian) |
| • Hindi | • Spanish (Latin America) |
| • Lithuanian | • Thai |
| • Mandarin | • Traditional Chinese |
| • Marathi | • Swedish |
| • Polish | |

The Edmonton Frail Scale

NAME : _____

d.o.b. : _____ DATE : _____

Frailty domain	Item	0 point	1 point	2 points
Cognition	Please imagine that this pre-drawn circle is a clock. I would like you to place the numbers in the correct positions then place the hands to indicate a time of 'ten after eleven'	No errors	Minor spacing errors	Other errors
General health status	In the past year, how many times have you been admitted to a hospital?	0	1-2	≥2
	In general, how would you describe your health?	'Excellent', 'Very good', 'Good'	'Fair'	'Poor'
Functional independence	With how many of the following activities do you require help? (meal preparation, shopping, transportation, telephone, housekeeping, laundry, managing money, taking medications)	0-1	2-4	5-8
Social support	When you need help, can you count on someone who is willing and able to meet your needs?	Always	Sometimes	Never
Medication use	Do you use five or more different prescription medications on a regular basis?	No	Yes	
	At times, do you forget to take your prescription medications?	No	Yes	
Nutrition	Have you recently lost weight such that your clothing has become looser?	No	Yes	
Mood	Do you often feel sad or depressed?	No	Yes	
Continence	Do you have a problem with losing control of urine when you don't want to?	No	Yes	
Functional performance	would like you to sit in this chair with your back and arms resting. Then, when I say 'GO', please stand up and walk at a safe and comfortable pace to the mark on the floor (approximately 3 m away), return to the chair and sit down.	0-10 s	11-20 s	One of : >20 s , or patient unwilling , or requires assistance
Totals	Final score is the sum of column totals			

Scoring :

- 0 - 5 = Not Frail
- 6 - 7 = Vulnerable
- 8 - 9 = Mild Frailty
- 10-11 = Moderate Frailty
- 12-17 = Severe Frailty

TOTAL

/17

Administered by : _____

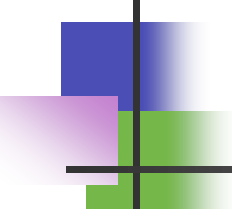
Reported Edmonton Frail Scale

Frailty Domain	Item	0 Point	1 Point	2 Points
Cognition	Please imagine this pre-drawn circle is a clock. I would like you to place the numbers in the correct positions, then place the hands to indicate a time of 'ten after eleven'.	No errors	Minor spacing errors	Other errors
General Health Status	In the past year, how many times have you been admitted to a hospital? In general, how would you describe your health?	0 Excellent/Very Good/Good	1-2 Fair	≥ 2 Poor
Functional Independence	With how many of the following activities do you require help? meal preparation / shopping / transportation / telephone / housekeeping / laundry / managing money / taking medications	0-1	2-4	5-8
Social Support	When you need help, can you count on someone who is willing and able to meet your needs?	Always	Sometimes	Never
Medication Use	Do you use five or more different prescription medications on a regular basis? At times, do you forget to take your prescription medications?	No No	Yes Yes	
Nutrition	Have you recently lost weight such that your clothing has become looser?	No	Yes	
Mood	Do you often feel sad or depressed?	No	Yes	
Continence	Do you have a problem with losing control of urine when you don't want to?	No	Yes	
Self Reported Performance	Two weeks ago, were you able to: (1) Do heavy work around the house like washing windows, walls, or floors without help? (2) Walk up and down stairs to the second floor without help? (3) Walk 1 km without help?	Yes Yes Yes	No No No	

Scoring for the Reported Edmonton Frail Scale (/18):

Not Frail: 0-5 Apparently Vulnerable: 6-7 Mildly Frail: 8-9 Moderate Frailty: 10-11 Severe Frailty: 12-18

References: Hilmer, S.N. et al. (2009). The assessment of frailty in older people in acute care. *Australasian Journal on Ageing*, 28(4), 182-188.
Rolfson, D.B. et al. (2006). Validity and reliability of the Edmonton Frail Scale. *Age and Ageing*, 35(5), 526-529.



Estimated time: < 10 min

Hybrid of the Frailty Index and the Cardiovascular Health Study Frailty Phenotype Approach. Descriptor of a person's level of frailty based on nine components: cognition, general health, functional independence, social support, medication use, nutrition, mood, continence, functional performance.

Classification or scoring

Five categories ranging from not frail to severe frailty. Scoring out of 17.

- 0-5 not frail
- 6-7 vulnerable
- 8-9 mild frailty
- 10-11 moderate frailty
- 12-18 severe frailty

Clinical settings

- Hospital acute care
- Outpatient clinical setting
- Community / general practice

Assessment process

Self-reported, observation of function

- ✗ Special equipment
- ✓ Assessor training
- ✓ Valid and reliable
- ✓ Outcome prediction

Pros and cons

- ✓ Can be administered by non-specialists (people with no training in geriatric assessment)
- ✓ Physical and non-physical domains assessed.
- ✗ Time consuming in acute settings
- ✗ Has features which limit its use in patients who do not speak English, or who are hearing or vision impaired.

Reference

1. Hilmer SN, Perera V, Mitchell S et al. The assessment of frailty in older people in acute care. 2009. Australasian Journal on Ageing, 28(4):182-8.
2. Rockwood, K., X. Song, C. MacKnight, H. Bergman, D.B. Hogan, I. McDowell, and A. Mitnitski, A global clinical measure of fitness and frailty in elderly people. CMAJ, 2005. 173: p. 489-195.

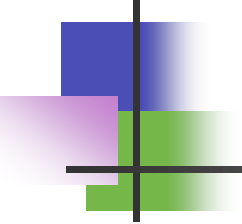
Additional comments

Domains: physical, psychological, social
Determines pre-frailty and outcome mortality.

Groningenski kazalnik krhkosti- The Groningen Frailty Indicator



- Uporablja se za odkrivanje krhkosti in ugotavljanje njene stopnje.
- Vključuje 15 vprašanj in se osredotoča na 4 področja krhkosti: fizično, kognitivno, socialno in psihološko.
- Možen je razpon ocen od 0 do 15. Ocena 3 predstavlja predkrhkost, ocena ≥ 4 pa predstavlja zmerno do hudo krhkost in povečano potrebo po celoviti oskrbi.

- 
-
- Je veljaven in zanesljiv za uporabo v institucionalnem varstvu (Xiang, et al., 2020).
 - Zaradi nesprejemljive diagnostične točnosti ga ne priporočajo za odkrivanje krhkosti v osnovnem ZV in skupnosti (Apostolo, et al., 2017).
 - Je napovednik smrtnosti, slabe kakovosti življenja, oviranosti in padcev (Steверink, et al., 2001).

GFI (Groningen Frailty Index)

Circle the appropriate answer and add scores

	YES	NO	
Mobility. Can the patient perform the following tasks without assistance from another person (walking aids such as a can or a wheelchair are allowed)			
1. Grocery shopping	0	1	
2. Walk outside house (around house or to neighbour)	0	1	
3. Getting (un)dressed	0	1	
4. Visiting restroom	0	1	
Vision			
5. Does the patient encounter problems in daily life because of impaired vision?	1	0	
Hearing			
6. Does the patient encounter problems in daily life because of impaired hearing?	1	0	
Nutrition			
7. Has the patient unintentionally lost a lot of weight in the past 6 months (6kg in 6 months or 3kg in 3 months)?	1	0	
Co-morbidity			
8. Does the patient use 4 or more different types of medication?	1	0	
	YES	NO	SOMETIMES
Cognition			
9. Does the patient have any complaints on his/her memory (or diagnosed with dementia)?	1	0	0
Psychosocial			
10. Does the patient ever experience emptiness around him? <i>e.g. You feel so sad that you have no interest in your surroundings. Or if someone you love no longer love you, how do you feel?</i>	1	0	1
11. Does the patient ever miss the presence of other people around him? Or do you miss anyone you love?	1	0	1
12. Does the patient ever feel left alone? <i>e.g. You wish there is someone to go with you for something important.</i>	1	0	1
13. Has the patient been feeling down or depressed lately?	1	0	1
14. Has the patient felt nervous or anxious lately?	1	0	1
Physical Fitness			
15. How would the patient rate his/her own physical fitness? (0-10 ; 0 is very bad, 10 is very good) 0 – 6 = 1 7 – 10 = 0	1	0	
TOTAL SCORE GFI			

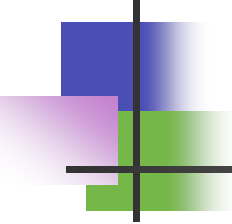
Appendix 6 – PS (Performance Status)

0		Normal activity without restriction.
1		Restricted in physically strenuous activity but ambulatory and able to carry out light work.
2		Ambulatory and capable for all self-care, unable to carry out any work and about >50% of waking hours.
3		Capable only limited self-care, confined to bed or chair and about <50% of waking hours.
4		Completely disabled, cannot carry on any self-care, totally confined to bed or chair.



Zaključek

- Raziskave kažejo, da se krhkost najpogosteje ocenjuje z namenom ugotoviti tveganje za slabe zdravstvene izide in bistveno manj z nameni kliničnega odločanja in ciljanih intervencij (Buta, et al., 2016; Dent, et al., 2019).
- Največ merilnih orodij je namenjenih ocenjevanju starejših v skupnosti (Buta, et al., 2016).
- Le nekatera orodja so dokazano veljavna, zanesljiva in diagnostična natančna ter imajo dobro napovedno veljavnost. Med najbolj robustnimi veljajo Friedovi kriteriji in Indeks krhkosti akumuliranih deficitov (Apostolo, et al., 2017; Veninšek & Gabrovec, 2018).

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- Ne obstaja univerzalno primerno specifično orodje za ocenjevanje krhkosti. Izbira naj temelji na individualnem kontekstu in namenu ocenjevanja (Buta, et al., 2016; Apostolo, et al., 2017).
 - Če je namen ugotavljanje tveganja neželenih izidov: izberemo orodje, ki ima najboljšo napovedno veljavnost za izid/e, ki nas zanimajo.
 - Če je namen raziskati krhkost oziroma razumeti njeno etiologijo: izberemo orodja, ki ne vključujejo meril za bolezni, oviranost in komorbidnost (Buta, et al., 2016).
 - Priporoča se uporaba preprostih orodij, ki ne zahtevajo veliko virov, katerih rezultate znajo interpretirati tudi strokovnjaki, ki niso zdravniko-specialisti in ki so prevedena in validirana za uporabo v domačem jeziku in okolju (Wilke Faller, et al., 2019).



Hvala za vašo pozornost!



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